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BEHAVIORAL EFFECTS OF HEMI-SYNC-EMBEDDED MEDITATION MUSIC ON A HORSE



by Helene N. Guttman, PhD,
and Shirley Bliley

Helene Guttman (shown above, left) heads HNG Associates, the sponsor of these studies, in Bethesda, Maryland, and is also animal care coordinator at the Agricultural Research Services, USDA. Shirley Bliley is an applied equine ethologist (behaviorist) who maintains horses in Lovington, Virginia, and is a member of the TMI staff. Here the authors discuss observed behavioral changes in a subject horse during a Hemi-Sync experiment.

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In her 1990 article, Guttman proposed using studies with species other than humans to determine whether listening to binaural beat technology, namely Hemi-Sync, would synchronize the left and right brain hemispheres and also result in a similar array of altered behavioral effects as experienced by humans. A number of beneficial applications of the use of Hemi-Sync for nonhuman animal species also were proposed. The first experimental test of this proposal, using an equine subject, was reported in Guttman's 1991 article. This study showed that the equine brain became synchronized (as shown by Fourier-transformed EEGs) as a result of listening to a music tape embedded with binaural beats.

The study reported here asked whether discernible behavioral differences could be detected in a horse listening to meditation music compared with listening to the same meditation music embedded with Hemi-Sync.

Methods

This study was done in the home upper pasture of the equine subject, Kerry Mist. It is important to note the environmental conditions on the day of the study because the subject usually expresses particular behaviors under such conditions. The study was done in the early afternoon of a very humid, hot (95°F) day with an electrical storm approaching rapidly. Under such circumstances, this horse usually moved inside her shelter in the lower pasture. Thus, the conditions were unfavorable for inducing the expression of a "calm behavior." Setting conditions that are opposed to a potential experiment-induced effect controls against the experimenter creating a self-fulfilling prophecy. Kerry Mist's stable mate, Bonny Dick, was allowed to roam freely in the pasture during the study, but chose to stay close to Kerry Mist for the entire study time.

Kerry Mist was outfitted with a hood to which was sewn headphones that were attached to a small, portable tape

player. Care was taken not to touch the horse's ears with the headphones. The tape player was secured to Kerry Mist's neck with veterinary tape. The initial experiment plan was to play two tapes in sequence for thirty minutes each. The entire experiment was recorded on videotape archive with date and time and with audio behavioral observations by Bliley. Bliley stood near the subject for the duration of the study and was unaware of the music tape that Guttman selected for play. The meditation music tapes played to Kerry Mist were selected at the last minute and their identities were known only by Guttman. For this study, the tapes selected were (1) *Inner Journey* (without Hemi-Sync) by Mohammad Sadigh—a powerful meditation composition—and (2) *Inner Journey* with Hemi-Sync (primarily Theta and secondarily Delta frequencies). There are no discernible differences in the audible sounds of the two tapes.

The rapidly approaching electrical storm (heralded by a clap of thunder and a bolt of lightning about a mile away) punctuated the first-selected tape after ten minutes of play. To assure at least some listening time on the second tape before the storm reached the pasture, the second tape was substituted at that time. After playing the second tape for eleven minutes, another, much closer, clap of thunder and bolt of lightning made a final punctuation to the tape portion of the experiment.

Results

At the start of the study, Kerry Mist was not agitated; she had been exposed to the headphone-containing hood previously and the three new people involved in this study and now accepted the three virtual strangers walking around her. She was not agitated by movements of her free-roaming stable mate in the pasture. As we were about to begin the experimental portion of the study, she exhibited the classic equine "relax stance" (one back leg raised and relaxed). The stable mate, Bonny Dick, came close and remained facing her tail from a distance of about one foot for the duration of the study.

During the playing of tape (1), Kerry Mist maintained the relax stance and stayed alert to the tape music, as evidenced by orienting her ears toward the sound from the headphones. At this point, it was noted that it was getting uncomfortably hot (all members of the human team and the horses were sweating profusely). Neither horse exhibited a startle response to the thunder and did not attempt to move to the shelter in the lower pasture. Also, they maintained their posture while tape (1) was unloaded and tape (2) was inserted.

While listening to tape (2), Kerry Mist maintained her "ears alert" position. She became progressively *more* relaxed, as evidenced by her head position moving lower until it was no more than twelve inches from the ground. During this period, her manner changed to calmer and "looser," i.e., more detached from the surroundings, as evidenced by her not swatting the numerous flies that landed on her. Her legs were no longer directly under her trunk and she was no longer standing straight. She did not tug on her rope to signal that she would prefer to move elsewhere, as she usually would during a rapidly approaching storm.

Kerry Mist maintained this demeanor until after the tape was turned off and the equipment and hood were removed. She then moved very slowly and lackadaisically (but not staggering), staying in the upper pasture only a few feet from where she had been listening to the tapes. Finally, she made a succession of six big yawns. This horse had never before been seen to make serial yawns!

These results show that the addition of a Theta-Delta Hemi-Sync program to a powerful meditation composition produces additional, easily visible behavioral effects.

Discussion

Horses become recumbent only about three hours out of

each twenty-four. Horses only exhibit REM sleep during recumbency. Recumbency usually is exhibited during the night and is preceded by relaxation and head lowering until the head touches the ground. Since the subject horse in this study never before approached this almost recumbent state during a hot, humid day with an electrical storm rapidly approaching, it is probable that it was induced by the combination of a powerful meditation music tape plus the embedded Theta-Delta Hemi-Sync program. This evoking of behavioral change in an equine suggests the potential for numerous uses for various Hemi-Sync-embedded tapes with nonhuman animal species, including relaxing animals during transportation (transportation usually is stressful); inducing "relax-alert" before tasks; using concentration tapes for training animals that are hyperactive and have difficulties learning new tasks, etc.

The observation that Kerry Mist's stable mate maintained his position behind her during the entire tape portion of this study suggests that it would be interesting to follow the EEG output of close pairs ("friends") of animals, including humans, to determine whether the EEG output in the member of the pair not receiving direct audio stimulation changes to resemble the EEG output of the subject who has received the audio stimulation. In addition, future experiments now in the planning stage will investigate interspecies relationships, for example, those between Border collies and the sheep they herd.



RECAPTURING THE INTUITIVE IN THERAPY AND EDUCATION: HEMI-SYNC IN ADULT CONTINUING EDUCATION



by Suzanne Evans Morris, PhD

Internationally known for her work with children with developmental disabilities, speech-language pathologist Suzanne Evans Morris maintains a private practice near Charlottesville, Virginia. As director of New Visions, she also provides innovative professional workshops and family-oriented clinical services. Dr. Morris is a member of the TMI Board of Advisors.

In 1985 adult continuing education workshops were developed for professionals working in rehabilitation and special education. Between 1985 and 1988, 320 individuals attended twelve small, five-day workshops that incorporated

Hemi-Sync signals in background music to enhance participant learning. Following the workshop 96% stated that they were both more relaxed and more attentive than usual during the workshop. In a follow-up questionnaire four months later, 50% of those responding stated that they were using Hemi-Sync tapes in therapy with children and adults. Many participants stated they felt more intuitive and connected with their clients since the workshop. However, this experience was frequently uncomfortable since they lacked the trust and ability to integrate these intuitive "hunches" with the rational approach others expected. From this feedback a new workshop, "Recapturing the Intuitive in Therapy and Education," was born.

Workshop Rationale

Current systems of professional education were examined to identify existing models of thinking that would validate an intuitive-rational model.

Therapy and education have been described as both arts and sciences. However, most educational programs have supported only the scientific component. The "art of therapy" has been superficially acknowledged, but little has been provided to assist the development of skill and accuracy in this area. Professionals are usually educated and trained in a fact-based approach. The assumption is made that clinical and educational decisions are made at a rational level, and specific approaches and techniques should be supported by scientific theory and research. The therapist or educator is expected to observe each aspect of the client's abilities and disabilities, and move step by step toward the logical conclusion. Only information that "makes sense" and can be verified objectively is included in the planning of a therapy or educational program.

The term "clinical intuition" might be substituted for the "art of therapy." An intuitive approach to assessment and treatment includes hunches and spatial-timing components. Intuition is defined as *knowing something without knowing how we know it*.

In accessing intuitive information, professionals open both physical and nonphysical senses to obtain a global impression of the child and family. Questions are asked of the intuitive self, and answers are incorporated in the assessment, treatment, or education program. The intuitive data is generally refined, with specific points checked out by additional questions and observations. Responses to subtle non-verbal messages and intuitive knowledge promote further investigation or lead directly to a conclusion. Changes in space and time occur so easily and appropriately that therapy/education exhibits an aliveness and a flow from one event to the next. Information does not initially have to make sense. It usually cannot be validated objectively at the time it is perceived to be accurate. An intuitive approach leads to quantum leaps in understanding, and is an essential component of creativity. It allows therapists and educators to become more sensitive to their own needs and to the needs of their students and clients. It improves the effectiveness of clinical problem solving.

Research on right-left hemisphere processing supports multiple ways of dealing with information. The styles represented by the right hemisphere (i.e., intuitive, spontaneous, holistic, visual, artistic, spatial, nonverbal, symbolic, diffuse, playful) are equal to the processing styles of the left hemisphere (analytical, linear, sequential, verbal, concrete, rational, goal-oriented). Integration of the two hemispheres and subcortical processing provide full access to human capability. With skill and efficiency in all ways of understanding a situation or concept, the individual may be described as using the whole brain. The whole-brain concept becomes a metaphor for rehabilitation and education. Use of a single processing style reduces the information-processing capability of the individual. For complete function, the total capaci-

ty of the individual must be recognized and nourished.

Work with individuals with special needs is enhanced when therapists and educators integrate rational and intuitive styles of thinking—a skill that honors both the science and art of therapy. To do this, educational programs must support the development of skill and confidence in both ways of processing information. Yet, professional education, with its rational-linear mode of teaching, implies that intuitive thinking is inappropriate in therapy and education. Most professionals engage in intuitive thinking as they deal with the daily issues that confront them. Although they automatically bring intuition into therapy or the classroom, few have developed their intuitive skills to as great a degree as their rational skills.

The creation of binaural beats in the brain through the Hemi-Sync process creates the natural environment for developing this blending of intuitive and rational processing skills. Through the noninvasive use of Hemi-Sync sounds, a more equal balance of activity is created in the right and left hemispheres of the brain. Subjectively reported emotional balance would also imply the activation of the subcortical limbic system.

Workshop Design

The three-day workshop is designed to assist participants to discover and trust their unique perceptive and intuitive skills; create a receptive mode for learning and gathering information; become more sensitive to inner needs and those of their clients; improve the effectiveness of clinical problem solving; rapidly gain access to intuitive states of consciousness that support intuitive and creative thinking; and enhance the ability to integrate intuitive and rational styles of thinking and problem solving.

The teaching design includes a careful blend of theoretical and experiential components. Each program begins with an examination of the process of intuition and a review of situations that enhance ease and accuracy of intuitive thinking. Laboratory research and experiential information is discussed, linking Hemi-Sync with situations that support intuition. Participants are introduced to a series of tools for accessing and using intuition. Hemi-Sync audiotapes from the *GATEWAY EXPERIENCE* home course, *METAMUSIC Artist Series*, and *MIND FOOD* category are presented via stereo headphones. These provide a set of group exercises that enable each individual to put away distracting thoughts, enhance personal energy, affirm the intent to access information, enhance mental awareness, and tap into levels of human consciousness that create a more efficient access to intuitive information. A series of practical discussions and group exercises is blended with the taped experiences. These enable participants to practice and affirm the use of intuition with others, to integrate rational and intuitive information in practical situations, and to create applications for therapy and educational settings.

During the past year, guidelines for using Hemi-Sync with children and adolescents were included. Videotapes documenting the use of Hemi-Sync tapes to enhance sensory integration, develop focus of attention, increase learning skills, and develop self-esteem were presented. In addition to enhancing these abilities, Hemi-Sync may indirectly assist children to develop stronger intuitive knowledge of their own needs and learning processes. When both therapist-educator and child are sensitive to intuition, the resulting shared knowledge can increase the accuracy and effectiveness of the educational or therapy session.

Workshop Follow-Up and Feedback

Since 1989, four workshops, with a total of fifty-eight participants, have been presented. Participants have included professionals in special education, speech-language pathology,

occupational therapy, therapeutic horseback riding, and music education, and parents of children with disabilities.

In June 1992 a follow-up questionnaire was mailed to each participant. Thirty-two questionnaires, or 55%, were returned. Seventeen individuals took the workshop in 1989 or 1990 and had been using the information for two to three years. Fifteen individuals took the workshop in 1991 or 1992 and had been using the information for three months to one year.

The questionnaire contained open-ended questions on the current use and accuracy of intuition, use of specific intuitive tools, and ongoing use of specific Hemi-Sync tapes. Participants were also asked to rate themselves on a 10-point scale before the workshop and currently in their accuracy of intuition and ability to blend rational and intuitive information in educational and clinical areas.

Use of Personal Intuition and Accuracy

Participants described many changes in their use and accuracy of intuition in their personal lives. These included greater willingness to acknowledge, explore, and accept intuitive information; greater ease in "reading" people and understanding their intentions; greater ease in moving with the flow in life without having to plan and control everything. As a group they acknowledged increases in personal accuracy which resulted in increased confidence in using intuition.

Use of Professional Intuition and Accuracy

Intuition was used more easily in therapy and classroom settings. A majority of respondents were more aware of the needs and messages of children and their parents, and felt greater empathy in working with others. Most were incorporating intuitive information in the development of individual education plans and therapy sessions with feedback of improved accuracy in program development and implementation. With greater accuracy, confidence increased, leading to further increases in skill and accuracy. Many therapists stated that they had become more skillful in blending intuitive and rational aspects of therapy.

Rating of Skill and Accuracy of Intuition and Ability to Blend the Intuitive and Rational

On a 10-point scale, participants accumulated a mean score of 4.93 (SD 1.82) for accuracy before the workshop and 7.81 (SD 1.12) at the present time. This was a gain of 2.89 (SD 1.40) points, or approximately 29%; 85% rated themselves at 7 or higher. A mean score of 4.56 (SD 1.64) represented blending of the intuitive and rational before the workshop and 8.04 (SD 1.10) at the present time. This was a gain of 3.48 (SD 1.45) points, or approximately 35%; 85% rated themselves at 7 or higher.

Tools and Tapes Supporting Intuition

Participants described widely creative uses of the specific tools explored during the workshop. Initially these tools were used in a more structured way than they were at the present time. Although tools and specific tapes continued to be used in more challenging situations, most participants felt that the process had become internalized, and intuition flowed more spontaneously. A full 77% stated that they used Hemi-Sync tapes in their work with others. Most reported changes they felt could be attributed to Hemi-Sync.

Most participants had purchased tapes for personal and professional use. *METAMUSIC* tapes were being used by 88% at home and as a background for learning with others; 53% were using the *MIND FOOD* tapes *Morning Exercise*, *Concentration*, *Energy Walk*, and *Catnapper*. *METAMUSIC* and *MIND FOOD* tapes continued to be used frequently, with many reporting daily use with clients and students.

Additionally, 44% used tapes from the *EXCURSION* and *GATEWAY EXPERIENCE Discovery* albums following the workshop. These were used frequently during the first one to two months, but were currently used occasionally, "as needed."

Most Valuable Aspect of the Workshop

Responses varied among participants but most had the theme of validation of intuition in professional life. Most of the workshop attendees felt they were somewhat intuitive before the workshop, but because of professional bias, they had learned to hide this ability or to notice it only in their personal lives.

Summary

Intuitive skills can be taught successfully and enhanced when Hemi-Sync is used as a tool for rapid learning. The workshop model, blending the experiential with discussion and analysis of the intuitive process, created a model for blending the intuitive and rational in daily life. Most of the respondents in this study were successfully developing their ability to integrate multiple information processing styles.

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